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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/441,805	11/17/1999	DAVID F. SMITH	981117DS	5064

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EXAMINER

BELLO, AGUSTIN

ART UNIT PAPER NUMBER

2633

DATE MAILED: 08/12/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/441,805

Applicant(s)

SMITH ET AL.

Examiner

Agustin Bello

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3. 6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3, 7, 8, and 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taylor (U.S. Patent No. 5,938,309).

Regarding Claims 1 and 11, Taylor teaches a wavelength division multiplexed optical system comprising: a plurality of optical transmitters (reference numeral 20, 40, 50, 60 in Figure 1), each transmitter configured to transmit information at via at least one signal wavelength at a bit transmission rate and signal power; and, a plurality of optical receivers (reference numeral 110, 140, 150 in Figure 1), each receiver configured to the receive information transmitted via at least one of the at least one optical wavelengths, wherein the at least one signal wavelength and bit transmission rate of each of said plurality of transmitters is selected to allow for the transmission of the information via the signal wavelength to at least a corresponding one of said plurality of said receivers without regeneration (column 2 lines 4-6, column 6 lines 56-60).

Taylor differs from the claimed invention in that Taylor fails to specifically teach that the information transmitted at a first bit transmission rate and first signal power to a first receiver without regeneration would require at least one of electrical regeneration and optical regeneration to reach a second receiver. However, one skilled in the art would clearly have recognized that transmission distances between transmitters and receivers in optical

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communication system are limited in range. According to these range limitations, one skilled in the art would have recognized that regeneration would have been required for transmission of a signal from a first transmitter to a second receiver, the second receiver following a first receiver. Furthermore, regeneration of signals in order to overcome transmission range limits is very well known in the art. Therefore, it would have been obvious to one skilled in the art at the time the invention was made that the information transmitted at a first bit transmission rate and first signal power to a first receiver without regeneration would require at least one of electrical regeneration and optical regeneration to reach a second receiver.

Regarding Claim 3, Taylor teaches that the system is configured as a continuous optical path configured to carry signal wavelengths (reference numeral 80 in Figure 1).

Regarding Claim 7, Taylor teaches that at least one of said plurality of optical transmitters includes an inverse multiplexer (reference numeral 32 in Figure 1) configured to separate a high bit rate signal (reference numeral 30 in Figure 1) into a plurality of lower bit rate signals (e.g. four OC-48 signals output from inverse multiplexer 32 in Figure 1), said at least one transmitter (reference numeral 20, 22 in Figure 1) being further configured to upconvert at least two of the lower bit rate signals onto corresponding signal wavelengths; and, at least one of said plurality of optical receivers includes an inverse demultiplexer (reference numeral 150 in Figure 1) configured to receive said plurality of lower bit rate signals from said at least one receiver and provide the high bit rate (e.g. OC-192 output from inverse demultiplexer 150 in Figure 1).

Regarding Claim 8, Taylor teaches that at least one of said plurality of optical transmitters is configured to transmit information at the high bit rate to at least one of said plurality of receivers without regeneration (column 2 lines 4-6, column 6 lines 56-60).

Regarding Claim 12, Taylor teaches or suggests that said providing includes providing a plurality of optical receivers (reference numeral 110, 140, 150 in Figure 1) configured to each receive at least one signal wavelength; and, said transmitting a second information set includes transmitting a plurality of information via a plurality of signal wavelengths at different bit transmission rates (column 3 lines 43-44) and signal powers sufficient to be received by at least one of the plurality of optical receivers without regeneration (column 2 lines 4-6, column 6 lines 56-60).

Regarding Claim 13, Taylor teaches that said transmitting a first information includes transmitting the first information at the highest suitable bit transmission rate (column 2 lines 4-6) and signal power (inherent in the use of amplifiers instead of regenerators) that can be received by said first optical receiver without regeneration (column 6 lines 56-60).

Regarding Claim 14, Taylor teaches that said transmitting the plurality of information via a plurality of signal wavelengths includes transmitting the plurality of information via a plurality of signal wavelengths that minimize the transmission loss in the optical path (column 4 lines 27-30).

3. Claims 2, 4-6, and 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taylor in view of Mizrahi (U.S. Patent No. 6,069,719).

Regarding Claim 2, Taylor differs from the claimed invention in that Taylor fails to specifically teach at least a portion of said plurality of transmitters optically communicate with at least a portion of said plurality of optical receivers through at least one of an optical router and add/drop device. However, Taylor suggest that some of the signals could be diverted by an add/drop device (column 6 lines 21-24) or to a router connected to another optical system

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(column 8 lines 9-12). Furthermore, add/drop devices and routers in optical systems are very well known in the art as shown by Mizrahi (Figure 1). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to allow at least a portion of said plurality of transmitters optically communicate with at least a portion of said plurality of optical receivers through at least one of an optical router and add/drop device.

Regarding Claim 4, the combination of Taylor and Mizrahi teaches that said system includes a plurality of optical access ports (reference numeral 20, 30 in Figure 2 of Mizrahi) configured to allow optical signal wavelengths to be transmitted into and received from said optical path and to prevent optical signal wavelengths from completely traversing said continuous path (e.g. dropped signals in Mizrahi).

Regarding Claim 5, the combination of Taylor and Mizrahi teaches wherein said plurality of access ports includes at least one of an optical transmitter (column 5 lines 10-13 of Mizrahi) and an optical receiver (column 4 lines 29-32 of Mizrahi).

Regarding Claim 6, the combination of Taylor and Mizrahi teaches that said plurality of access ports includes at least one of an optical switch and an add/drop multiplexer (reference numeral 60, 90 in Figure 1) configured to insert and/or remove optical signal wavelengths from said path.

Regarding Claim 9, the combination of Taylor and Mizrahi teaches at least one of said plurality of optical transmitters includes an electrical multiplexer (column 4 lines 66-67 and column 5 lines 1-4) configured to combine system information with communications traffic information (column 8 lines 16-20 of Taylor and the service channel taught by Mizrahi) and transmit the system and communications traffic information via at least one of the signal

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wavelengths (e.g. λ_{sc} of Mizrahi); and, at least one of said plurality of optical receivers includes an electrical demultiplexer (column 7 lines 65-67, column 8 lines 1-6 of Taylor) configured to separate the system information from the communications traffic information (column 8 lines 16-20 of Taylor).

Regarding Claim 10, the combination of Taylor and Mizrahi teaches that said system includes an add/drop multiplexer (reference numeral 60, 90 in Figure 1 of Mizrahi) configured to remove and insert the at least one signal wavelength carrying the system information (e.g. service channel of Mizrahi, or overhead bits of Taylor) combined with communications traffic and at least one other signal wavelength carrying only communications traffic (reference numeral 64, 94 in Figure 1 of Mizrahi).

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Chraplyvy and Meli teach optical communication system that do not use regenerators.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Agustin Bello whose telephone number is (703)308-1393. The examiner can normally be reached on M-F 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (703)305-4729. The fax phone numbers for the organization where this application or proceeding is assigned are (703)872-9314 for regular communications and (703)872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-3900.


JASON CHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

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August 2, 2002